

# SEQUENCE LISTING

<110> Knutzon, Debbie

<120> POLYUNSATURATED FATTY ACIDS IN PLANTS

<130> MOCO.156.00US

<140> 09/330,235

<141> 1999-06-10

<150> 60/089,043

<151> 1998-06-12

<160> 22

<170> PatentIn version 3.0

<210> 1

<211> 1391

<212> DNA

<213> Caenorhabditis elegans

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Pro Arg Ile Gln Leu Pro Thr Val Asp Ala Phe Arg Arg Ala Ile Pro  
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Ala His Cys Phe Glu Arg Asp Leu Val Lys Ser Ile Arg Tyr Leu Val  
65 70 75 80  
Gln Asp Phe Ala Ala Leu Thr Ile Leu Tyr Phe Ala Leu Pro Ala Phe  
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Glu Tyr Phe Gly Leu Phe Gly Tyr Leu Val Trp Asn Ile Phe Met Gly  
100 105 110  
Val Phe Gly Phe Ala Leu Phe Val Val Gly His Asp Cys Leu His Gly  
115 120 125  
Ser Phe Ser Asp Asn Gln Asn Leu Asn Asp Phe Ile Gly His Ile Ala  
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 <212> PRT  
 <213> Brassica napus

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 35 40 45  
 Pro Leu Arg Ser Met Ser Tyr Val Thr Arg Asp Ile Phe Ala Val Ala  
 50 55 60  
 Ala Leu Ala Met Ala Ala Val Tyr Phe Asp Ser Trp Phe Leu Trp Pro  
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 Gly His Asp Cys Gly His Gly Ser Phe Ser Asp Ile Pro Leu Leu Asn  
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 Ser Val Val Gly His Ile Leu His Ser Phe Ile Leu Val Pro Tyr His  
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 Gly Trp Arg Ile Ser His Arg Thr His His Gln Asn His Gly His Val  
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 <213> Mortierella alpina

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 50 55 60  
 Ala Phe Gly Ala Ala Asp Ala Ile Met Lys Lys Tyr Tyr Val Gly Thr  
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 Lys Thr Ile Lys Thr Arg Val Glu Gly Tyr Phe Thr Asp Arg Asn Ile  
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 Asp Pro Lys Asn Arg Pro Glu Ile Trp Gly Arg Tyr Ala Leu Ile Phe  
 115 120 125  
 Gly Ser Leu Ile Ala Ser Tyr Tyr Ala Gln Leu Phe Val Pro Phe Val  
 130 135 140  
 Val Glu Arg Thr Trp Leu Gln Val Val Phe Ala Ile Ile Met Gly Phe  
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 Ala Cys Ala Gln Val Gly Leu Asn Pro Leu His Asp Ala Ser His Phe  
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 Ser Val Thr His Asn Pro Thr Val Trp Lys Ile Leu Gly Ala Thr His  
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 Asp Phe Phe Asn Gly Ala Ser Tyr Leu Val Trp Met Tyr Gln His Met  
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Val Lys Thr Asn Asp Ala Ile Arg Val Asn Pro Ile Ser Thr Trp His  
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Thr Val Met Phe Trp Gly Gly Lys Ala Phe Phe Val Trp Tyr Arg Leu  
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Ile Val Pro Leu Gln Tyr Leu Pro Leu Gly Lys Val Leu Leu Leu Phe  
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Thr Val Ala Asp Met Val Ser Ser Tyr Trp Leu Ala Leu Thr Phe Gln  
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Ala Asn His Val Val Glu Glu Val Gln Trp Pro Leu Pro Asp Glu Asn  
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Gly Ile Ile Gln Lys Asp Trp Ala Ala Met Gln Val Glu Thr Thr Gln  
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Asp Tyr Ala His Asp Ser His Leu Trp Thr Ser Ile Thr Gly Ser Leu  
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Asn Tyr Gln Ala Val His His Leu Phe Pro Asn Val Ser Gln His His  
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Tyr Pro Asp Ile Leu Ala Ile Ile Lys Asn Thr Cys Ser Glu Tyr Lys  
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47

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<212> DNA

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<210> 17

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<212> DNA

<213> Mortierella alpina

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 <213> Mortierella alpina

<400> 18

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Asp His Pro Gly Gly Ser Val Ile Leu Thr His Val Gly Lys Asp Gly  
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Thr Asp Val Phe Asp Thr Phe His Pro Glu Ala Ala Trp Glu Thr Leu  
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Ala Asn Phe Tyr Val Gly Asp Ile Asp Glu Ser Asp Arg Asp Ile Lys  
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Asn Asp Asp Phe Ala Ala Glu Val Arg Lys Leu Arg Thr Leu Phe Gln  
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Ser Leu Gly Tyr Tyr Asp Ser Ser Lys Ala Tyr Tyr Ala Phe Lys Val  
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Ser Phe Asn Leu Cys Ile Trp Gly Leu Ser Thr Val Ile Val Ala Lys  
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Trp Gly Gln Thr Ser Thr Leu Ala Asn Val Leu Ser Ala Ala Leu Leu  
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Gly Leu Phe Trp Gln Gln Cys Gly Trp Leu Ala His Asp Phe Leu His

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Leu Gly Gly Val Cys Gln Gly Phe Ser Ser Ser Trp Trp Lys Asp Lys 195 200 205		
His Asn Thr His His Ala Ala Pro Asn Val His Gly Glu Asp Pro Asp 210 215 220		
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Phe Ser Asp Val Pro Asp Glu Glu Leu Thr Arg Met Trp Ser Arg Phe 245 250 255		
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Asn Gly Met Pro Val Ile Ser Lys Glu Glu Ala Val Asp Met Asp Phe 355 360 365		
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Glu Thr Leu Cys Lys Lys Tyr Asn Val Arg Tyr His Thr Thr Gly Met 420 425 430		
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 <213> Mortierella alpina

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<211> 399  
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 <213> Mortierella alpina

<400> 20

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His	Cys	Phe	Glu	Arg	Ser	Gly	Leu	Arg	Gly	Leu	Cys	His	Val	Ala	Ile	50	55	60	
Asp	Leu	Thr	Trp	Ala	Ser	Leu	Leu	Phe	Leu	Ala	Ala	Thr	Gln	Ile	Asp	65	70	75	80
Lys	Phe	Glu	Asn	Pro	Leu	Ile	Arg	Tyr	Leu	Ala	Trp	Pro	Val	Tyr	Trp	85	90	95	
Ile	Met	Gln	Gly	Ile	Val	Cys	Thr	Gly	Val	Trp	Val	Leu	Ala	His	Glu	100	105	110	
Cys	Gly	His	Gln	Ser	Phe	Ser	Thr	Ser	Lys	Thr	Leu	Asn	Asn	Thr	Val	115	120	125	
Gly	Trp	Ile	Leu	His	Ser	Met	Leu	Leu	Val	Pro	Tyr	His	Ser	Trp	Arg	130	135	140	
Ile	Ser	His	Ser	Lys	His	His	Lys	Ala	Thr	Gly	His	Met	Thr	Lys	Asp	145	150	155	160
Gln	Val	Phe	Val	Pro	Lys	Thr	Arg	Ser	Gln	Val	Gly	Leu	Pro	Pro	Lys	165	170	175	
Glu	Asn	Ala	Ala	Ala	Ala	Val	Gln	Glu	Glu	Asp	Met	Ser	Val	His	Leu	180	185	190	
Asp	Glu	Glu	Ala	Pro	Ile	Val	Thr	Leu	Phe	Trp	Met	Val	Ile	Gln	Phe	195	200	205	
Leu	Phe	Gly	Trp	Pro	Ala	Tyr	Leu	Ile	Met	Asn	Ala	Ser	Gly	Gln	Asp	210	215	220	
Tyr	Gly	Arg	Trp	Thr	Ser	His	Phe	His	Thr	Tyr	Ser	Pro	Ile	Phe	Glu	225	230	235	240
Pro	Arg	Asn	Phe	Phe	Asp	Ile	Ile	Ile	Ser	Asp	Leu	Gly	Val	Leu	Ala	245	250	255	
Ala	Leu	Gly	Ala	Leu	Ile	Tyr	Ala	Ser	Met	Gln	Leu	Ser	Leu	Leu	Thr	260	265	270	

Val Thr Lys Tyr Tyr Ile Val Pro Tyr Leu Phe Val Asn Phe Trp Leu  
 275 280 285

Val Leu Ile Thr Phe Leu Gln His Thr Asp Pro Lys Leu Pro His Tyr  
 290 295 300

Arg Glu Gly Ala Trp Asn Phe Gln Arg Gly Ala Leu Cys Thr Val Asp  
 305 310 315 320

Arg Ser Phe Gly Lys Phe Leu Asp His Met Phe His Gly Ile Val His  
 325 330 335

Thr His Val Ala His His Leu Phe Ser Gln Met Pro Phe Tyr His Ala  
 340 345 350

Glu Glu Ala Thr Tyr His Leu Lys Lys Leu Leu Gly Glu Tyr Tyr Val  
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Tyr Asp Pro Ser Pro Ile Val Val Ala Val Trp Arg Ser Phe Arg Glu  
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Cys Arg Phe Val Glu Asp Gln Gly Asp Val Val Phe Phe Lys Lys  
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41